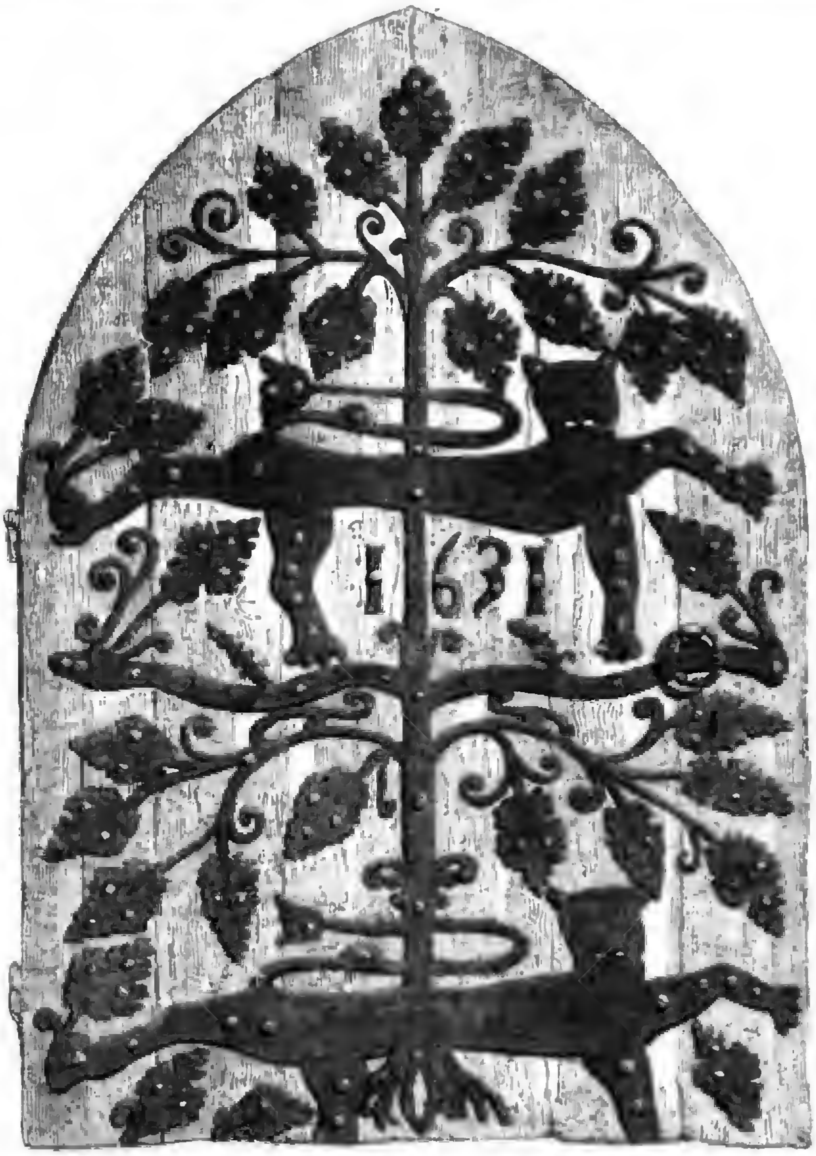
ANCIENT IRON-WORK, DARTMOUTH CHURCH, DEVONSHIRE.



IRON-WORK TO DOOR OF DARTMOUTH CHURCH, DEVONSHIRE.

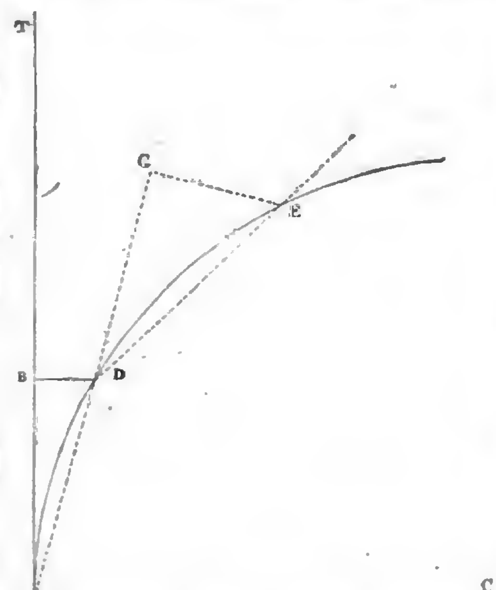
Considerable taste and skill in ancient times were displayed in all kinds of iron-work; this has been already most efficiently pointed out in these pages. The subject represented above, is a striking example of the boldness of ancient designers and workmen, and such that is indeed calculated to make their modern representatives stare. The style of the iron-work on the door at Dartmouth Church, is that of the reign of Edward III. The date, which appears 1631, is a puzzle; it either proves that in some parts of the country the different styles lingered for a considerable period longer than we now please to allow, or it proves that the iron-work belonged to an older door, and was brought there in that year. This latter supposition is the more likely to be correct, as it appears imperfect towards the lower portion, as if it had been made for a taller door; the style of the church is that of the reign of Edward III.

C. J. Richardson.

SETTING OUT CURVES ON RAILWAYS.

Your correspondent, "Amateur," in a recent number (June 14) of The Builder, requested to be furnished with a method for setting out curves on railways. In the absence of any answer being yet afforded to his inquiry, I venture to give the one I have usually adopted, and which in practice I have found to be simple and expeditious.

It is obvious that from the great radii of railway curves in general it would be impossible to strike them as in the usual manner, from a fixed centre. But the known relation between the sine and versed sine of an arc affords a ready means of effecting the same object.



For instance, in the annexed diagram, let A be the point whence the curve is proposed to commence with a radius, A C, of 60 or 80 chains, as the case may be. From the point A set off on the ground any convenient distance A T, of say 10 chains, marking each chain in its length. Then at the point B, the end of the first chain, set off B D at right angles to A B. Now if the ordinate B D be taken equal to the versed sine of an arc of a circle of the given radius, with a sine of one chain D, is the locus of the curve to be described at that point. The formula for calculating the value of B D is of easy application, being always equal to radius — $\sqrt{\text{rad.}^2 - \text{sin.}^2}$; and the same process will apply to any other required point in the curve, merely substituting the value of sin² in the expression, as the distances in the tangent, A T, increase from the point A. It is advisable, more particularly in uneven ground or where the space is confined, to recommence the operation at about every 8 or 10 chains, which is effected by setting out a new tangent to the curve. This may be done by joining the last ascertained point to the next but one from it in the curve, viz., that cor-